appertaining to the other Sections: an application most important in the progress of the world, and an application not to be lightly regarded, even by the strictest votaries of pure science, for it would be vain to hope that pure science would continue to be pursued if from time to time its discoveries were not brought into practical use.

Under ordinary circumstances I should have closed my address at this point, but there is a subject which at this, the first meeting of Section G after the meeting at Southport, must be touched upon. It is one of so sad a character that I have avoided all allusion to it until this the very last moment, but now I am compelled to grapple with it.

In the course of this address I have had occasion to mention several names of eminent men, many of them happily still with us, some of them passed away; but I doubt not you have been struck by the absence of one name, which of all others demands mention when considering physical science, and still more does it come vividly before us when considering the application of science to industrial purposes. I am sure I need not tell you that this name, which I can hardly trust myself to speak, is that of our dear friend William Siemens, whose contributions to science, and whose ability in the application of science, have for years enriched the transactions of this Section, and of Sections A and B, for in him were combined the mechanic, the physicist, and the chemist.

But a brief year has elapsed since he quitted the Presidential chair of the Association, and, with us at Southport, was taking his accustomed part in the work of this and of other Sections, apparently in good health, and with a reasonable prospect of being further useful to science for many valuable years to come. But it was not to be; he is lost to us, and in losing him we are deprived of a man whose electrical work has been second to none, whose thermic work has been second to none, and whose enlarged views justified him in embarking in scientific speculations of the grandest and most profound character. Whether or not his theory of the conservation of the energy of the sun shall prove to be correct, it cannot be denied that it was a bold and original conception, and one thoroughly well reasoned out from first to last.

I feel that, were I to attempt anything like the barest summary of his discoveries and inventions, I should set myself a task which could not have been fulfilled had I devoted the whole of the time I had at my command to the purpose. I had indeed thought of making his work the subject of my address, but I felt that his loss was so recent that I could not trust myself to attempt it. There is no need for me to dwell further upon this most painful topic. He was known to you all, he was honoured and loved by you all, and by every member of this Association he had so faithfully served, and over which he had so ably presided; and he enjoyed the respect and esteem of the best intelligence of England, the land of his adoption; of the Continent, his birthplace; and of Canada, and of the United States, whose populations are always ready to appreciate scientific talent and the resulting industrial progress. It is not too much to say that few more gifted men have ever lived, and that with all his ability and talent he combined a simplicity, a modesty, and an affectionate disposition that endeared him to all.

I am sorry to conclude my address to you in this mournful strain. I have endeavoured to confine my allusions to our dear friend within the narrowest limits, but if I have overstepped these I trust you will forgive me, remembering that "out of the fulness of the heart the mouth speaketh."

NOTES

We announce with great regret the death, yesterday, at the age of eighty-three years, of Mr. George Bentham, F.R.S., F.L.S., the eminent botanist.

The Committee which has been formed for the erection of a statue to the late Jean Baptiste Dumas at his native town, Alais (Gard), is an extensive one. The president is M. Pasteur, and the vice-presidents MM. J. Bertrand, F. de Lesseps, and Cauvet. The members of the Committee include all the names of scientific note in France. Among the foreign members are well-known men of all nationalities; the English members being Sir William Thomson, Dr. W. De La Rue, Prof. Williamson, and Dr. Frankland. There is besides a local Committee at Alais. With such powerful and wide support the monument is sure to be worthy of Dumas' reputation. Subscriptions should be sent to M. E. Maindrin, Palais de l'Institut de France, Paris.

The National Electrical Conference, convened by the U.S. Congress in connection with the Electrical Exhibition, began its sessions in Philadelphia on Monday. Addresses were made by the President of the Conference, Prof. Rowland of the Johns Hopkins University, Baltimore; also by Sir William Thomson, the Vice-President. The practical work of the Conference began on Tuesday afternoon with a discussion on the work of the United States Signal Office in relation to electrical observation. The Conference will hereafter discuss the necessity for a national bureau of electrical standards, the adoption of an international system of electrical units, and the theory of dynamo-electric machines. Prof. George Forbes of London delivered a lecture on dynamo-electric machinery on Tuesday evening.

The Iron and Steel Institute holds its annual meeting this year at Chester on September 23 and three following days. Among the papers and subjects for discussion are the following:—On the geology of Cheshire, by Mr. Aubrey Strahan, of H.M. Geological Survey, London; on improvements in the Siemens regenerative gas furnace, by Mr. Frederick Siemens, C.E., London; on recent improvements in the method of the manufacture of open-hearth steel, by Mr. James Riley, Glasgow, Member of Council; on a new form of regenerative furnace, by Mr. F. W. Dick, Glasgow; on the manufacture of crucible steel, by Mr. Henry Seebohm, Sheffield; on the recovery of by-products from coal, more especially in connection with the coking and iron industries, by Mr. Watson Smith, Owens College, Manchester; on the most recent results obtained in Germany in utilising the by-products from Otto and other coke ovens, by Dr. C. Otto, Dalhausen; on the North-Eastern Steel Company's Works at Middlesbrough, and their products, by Mr. Arthur Cooper, Middlesbrough; on the spectroscopic examination of the vapours evolved on heating iron, &c., at atmospheric pressure, by Mr. John Parry, Ebbw Vale.

The museum recently opened at Newcastle-on-Tyne by the Prince of Wales is a very fine building indeed, and of course is quite unconnected with the public library. The building contains the collections of the well-known Natural History Society of Northumberland, Durham, and Newcastle-on-Tyne, and will cost 42,000*l.* Of this 38,000*l.* have been raised by public subscription.

The preliminary programme of the Central Institution for Technical Education has been issued. The object of the Central Institution, it states, is to give to London a College for the higher technical education, in which advanced instruction shall be provided in those kinds of knowledge which bear upon the different branches of industry, whether manufactures or arts. The Institution is intended to afford practical scientific and artistic instruction which shall qualify persons to become (1) technical teachers; (2) mechanical, civil, electrical, chemical, and sanitary engineers, architects, builders, and decorative artists; (3) principals, superintendents, and managers of manufacturing works. The main purpose of the instruction to be given in this Institution will be to point out the application of different branches of science to various manufacturing industries; and in this respect the teaching will differ from that given in the Universities and in other institutions in which science is taught rather for its own sake than with the view to its industrial application. The courses of instruction will be arranged to suit the requirements of (1) persons who are training to become technical teachers; (2) persons who are preparing to enter some industrial or professional career; (3) persons who desire to attend special courses, with the view of acquainting themselves with the scientific principles underlying their work. Students intending to go through the complete course of technical instruction with the view of subsequently obtaining a diploma, will be required to pass an entrance or matriculation examination, which will include mathematics, pure and applied, chemistry, physics, drawing, and French or German. On the results of the examination the following scholarships will be awarded to students who are prepared to attend the complete course of instruction in any one department, provided that the merits and circumstances of the candidate justify the Committee in making the award:—(1) The Clothworkers' Scholarship of 60*l.* a year, tenable for two years and renewable for a third year, entitling the successful candidate to free education. (2) The Siemens Scholarship of 50 a year for three years, founded by Lady Siemens in memory of her husband, the late Sir William Siemens, LL.D., F.R.S. This Scholarship will be competed for in October 1885. (3) The Royal Albany Scholarship of 50*l.* a year for three years, founded by the Corporation of London in memory of the late Prince Leopold, Duke of Albany. (4) Two Mitchell Scholarships of 30*l.* a year for two years, one with and one without free education, to be awarded to candidates who have attended a public elementary school within the City of London, or whose parents are or have been resident or engaged in some trade or occupation within the City of London. The Siemens Medal, founded by Lady Siemens in memory of her husband, the late Sir William Siemens, LL.D., F.R.S., will be annually awarded to the student of greatest merit in the department of electrical engineering. The professors in charge of the several departments are:—Chemistry, Prof. H. E. Armstrong, Ph.D., F.R.S.; Engineering, Prof. W. C. Unwin, B.Sc., M.Inst.C.E.; Mechanics and Mathematics, Prof. O. Henrici, Ph.D., F.R.S.; Physics, Prof. W. E. Ayrton, F.R.S., A.M.Inst.C.E.

THE Paris *Journal Officiel* announces the formation of a Commission to investigate all matters connected with mines and mining in Tonquin and Annam. It is composed of various officials of experience in Indo-China, and their instructions are to draw up the programme of work to be executed by the mining party which is about to be sent out from France, and to draw up a draft agreement regulating the management and working of mines in conformity with the treaty of June last with Annam.

A SUBJECT which, according to the *Japan Mail*, is engaging the attention of native scientific men in Japan is the method of translating or transferring into Japanese the technical terms of European science. Hitherto Chinese words and characters have been employed for this purpose; in many cases the translations existed, we believe, in Chinese, and were simply adopted by the Japanese—such as the equivalents for telegraph and railway appliances, but in the great majority of cases a process of manufacture had to be resorted to. Given the sound of the technical term and its meaning, the problem was to find among existing Chinese characters one, two, or three, which suited one or other of these best; and thus a new word was formed. The scientific journal of Tokio attacks this system, saying that, whatever may be said on the score of the unity and adaptability of Chinese in transcribing technical terms, the clumsy and complex graphic system renders it unsuitable for youthful students, as the difficulty of committing to memory so many hundreds or thousands of arbitrary characters is still greater than the pursuit of a scientific or technical course of study. Prof. Yatabe, of the Tokio University, lays special stress on the use of the original foreign technical terms, instead of translating them into Chinese. In a lecture on the subject, this gentleman told the pupils of a normal school near Tokio that, in order to comprehend the scientific achievements of Europe, it was necessary to be conversant with one or more European languages, for, seen through the medium of the Chinese tongue, science lost much of its simplicity, and was at best but clumsily reproduced. Another native Professor of the University argued in a similar strain. The knowledge of some European language was, he said, essential, not only on account of the closer relations now existing between Japan and the West, but also because the study of the technical sciences would thereby be made materially easier than at present. Whatever might be the use of Chinese as a philosophical language, it was certainly most unsatisfactory as a vehicle for the reproduction of Western sciences.

M. F. A. FOREL communicates to the *Journal Suisse* an interesting account of the discovery of the relics of the "Hôtel des Neuchâtelois," an extemporised fastness on the glacier of the Lower Aar, occupied by Agassiz and his scientific friends from 1840 to 1843, while they were investigating the theory of glaciers and the Glacial period in the immediate factory of glaciers. Herr Ritter, from Leipzig, recently on a tour through the region of the Unteraar, found there a block of stone bearing the names of Stengel, Otz, and Martins, with the dates 1844 and 1845. In 1840 Agassiz and his friends, coming across an enormous block of micaceous schist, supported by other rocks, and forming a natural shelter, on the median moraine of the glacier, at the junction of the Lauteraar and Finsteraar, proceeded to complete the cabin thus prepared for them by running up some walls of dry stones. In his "Excursions et Séjours dans les Alpes," Desor gives a lively picture of the enthusiastic scientific life led by Agassiz and his zealous fellow-students of Nature in that simple yet elevated hall of science to which they gave the name of Hôtel des Neuchâtelois during the three years 1840 to 1843. The block, naturally friable, showed, as early as 1841, numerous fissures, and in 1844 split into two pieces. Since then the frost has rent it up into a heap of debris, and it is three pieces of this which have just been identified. They are a blackish micaceous schist of very fine grain. The piece highest situated bears several inscriptions of the colour of minium, but these are mostly illegible, and M. Forel could only make out "1848" thrice repeated, and "Vogt," the present Professor at Geneva; 23 m. lower down is the stone discovered by Herr Ritter, bearing in very legible capitals the inscriptions "STENGEL" (student of engineering under Osterwald), "1844"; "OTZ" (Engineer at Neuchâtel), "1845"; "CH. MARTINS" (Professor at Montpelier), with other letters which are indecipherable. There is also to be read on it "No. 2," a mark which confirms M. Forel's conclusion as to the connection of the stone with the Hôtel, Agassiz having caused certain stones to be distinguished by certain numbers, and their position to be taken by Engineer Wild, the block of the Hôtel der Neuchâtel being distinguished by the number "2"; 55 m. lower still is the third stone with the inscription: "SOLIOZ AUGUSTE, 1842; LIEUTENANT GUNTREN," and a few more words hardly comprehensible. These three blocks are now no longer, as in 1840, at the summit of the moraine, but have been slipping down the incline on the side of the Lauteraar, which merges in the glacial ravine, watered by a beautiful stream. Comparing the position of the Hôtel des Neuchâtelois, as given by Agassiz (797 m. from the promontory of Abscwhung), and as seen in Wild and Stengel's beautiful map of the glacier on the scale of 1 : 10,000, with the position which it now occupies, M. Forel calculates that the block must have glided a distance of 2400 m. from 1840 to 1884, or 55 m. a year. For the easier identification of the three blocks of stone by later explorers, M. Forel has inscribed on them, in fresh red colour, his own name and that of Herr Ritter, with the date 1884.

THE Institution of Civil Engineers send us the lengthy and valuable memoir of the late Sir William Siemens, presented to the Institution by Dr. William Pole. After a few words on the incidents of his life, Dr. Pole abandons any attempt at chronological arrangement as impossible because of Sir William Siemens's "extraordinary faculty of devoting his attention to many different lines of thought, and many different subjects of investigation, at one and the same period"; and accordingly his labours are classified under these heads:—(1) Heat and its applications, particularly to metallurgy; (2) Electrical science and practice; and (3) Miscellaneous engineering, mechanical, and scientific matters not included under the former heads. Dr. Pole then goes over the whole of Sir William Siemens's scientific labours in these fields, and, as might have been expected, produces the fullest and most valuable memoir of this distinguished member of "the creators of the age of steel" which has yet appeared.

THE "Year-Book of the Scientific and Learned Societies of Great Britain and Ireland," published by Messrs. Griffin and Co., will be found useful, and doubtless will be improved from year to year. The societies are arranged in fourteen sections, according to the field they occupy, with a fifteenth section, including some of the leading foreign societies. The compilers might certainly have avoided putting the Royal Society and the Royal Institution side by side, as if they had anything in common.

MR. W. M. MASKELL, F.R.M.S., continues his notes on the *Coccidæ* of New Zealand, and has sent us a lengthy continuation of his former papers, extracted from the *Transactions* of the New Zealand Institute, vol. xvi. That country seems to be especially rich in "scale-insects," and in Mr. Maskell they find an able student of their modes of life and characteristics. Especially curious is the species described as *Rhizococcus fossor*, the female of which does not cover herself with a sac or "scale," but sinks herself bodily in a circular pit in the substance of the leaf, and there lays her eggs; the species feeds on *Santolum cunninghamii* in the North Island. *Icenya parchasi*—a near relative of the "pou à poche blanche" (*I. sacchari*), so destructive in Mauritius, and which has probably been introduced into Queensland and elsewhere—seems to be spreading rapidly, and to be doing much damage, not only to cultivated trees and shrubs, but also to the native forests. Before carrying into effect the radical remedy of cutting down and destroying the infected trees, we would recommend Mr. Maskell to try an application of kerosene, which has certainly proved useful in the case of *Coccidæ* on oranges in America. The weak point of these papers consists in the extreme roughness of the plates; they may be characteristic so far as they go, but a few coarse scratches scarcely sufficiently represent hairs, neither does an open network of crossed lines indicate a solid and probably concave surface.

THE *Kavkaz* newspaper mentions a bolide that was seen on August 3 at Kazakh, in the district of Elizabethpol. It had the shape of a blue globe which broke into two globes of the same colour, and disappeared in the direction of the Caucasus Chain.

WE regret to learn of the death at Montreal, from typhoid fever, of Mr. Walter R. Browne, well known as a writer on the scientific aspects of engineering. Mr. Browne had gone to Montreal to attend the British Association meeting.

THE dangers to public health which lurk in out-of-the-way places appear inexhaustible. This time the danger comes from the matter which collects on coins which have been a long time in circulation, and to which we have already referred. M. Reinsch of Erlangen has devoted much study to this matter, and has investigated old and recent coins of all metals from all the European States. Everywhere he has found micro-organisms of Algæ and Bacteria. Scraping away the matter which accumulates in the interstices of the relief with a needle, and placing it in a drop of distilled water under a microscope of 250 to 300 diameters, he found fragments of textile fibres, numerous starchy granules, especially of the starch of wheat, globules of grease, some unicellular Algæ, &c. But when a microscope of greater power was used Bacteria were found among this detritus. There were long Bacteria with a vibratory or spiral movement, as well as those of a globular shape. Sometimes both forms were found on one coin; but as a rule each form was found separately. When a little glycerine or iodine was introduced into the preparation these ceased their movements. Among the Algæ two kinds were of most frequent occurrence, viz. a small *Chroococcus* and a small unicellular one resembling the *Palmellis*. They were collected in little spherical colonies of four, eight, or a dozen at a time, and were found only on old coins; recent ones contained only the Bacteria. A recent writer in *Science et Nature* refers to this discovery as of great importance from a hygienic point of view.

AT numerous places in Lower Austria several shocks of earthquake were felt on Tuesday last week. The duration of the shocks was from four to nine seconds each.

AT the last meeting of the Seismological Society of Japan, a paper (which is printed in the *Japan Gazette*) was read by Mr. E. Knipping on the meteorology of Japan. It was based on data obtained from twenty-three meteorological stations in Japan during the year 1883, the extreme positions being Kagoshima and Nagasaki in the south, and Sapporo and Nemoro in Yezo in the north. Interesting comparisons are instituted between the variations in temperature and pressure at different times of the year and in different parts of Japan, and similar variations in Europe.

THE additions to the Zoological Society's Gardens during the past week include two Ring-tailed Lemurs (*Lemur catta* ♂ ♀) from Madagascar, presented by Mr. Charles Stewart; a Common Marmoset (*Hapale jacchus*) from Brazil, presented by Mr. J. Henderson; two Peba Armadillos (*Tatusia peba*) from South America, presented by Mr. Frank Parish, F.Z.S.; a Wood Owl (*Syrnium aluco*), British, presented by Mr. J. Baldwin; two Smooth Snakes (*Coronella lævis*) from Hampshire, presented by Mr. W. H. B. Pain; seven Common Crowned Pigeons (*Goura coronata*) from New Guinea, a Victoria Crowned Pigeon (*Goura victoriæ*) from the Island of Jobie, two Brazilian Hangnests (*Icterus jamaicai*) from Brazil, deposited; a Gray-cheeked Monkey (*Cercocebus albigena*) from West Africa, purchased; a Prairie Wolf (*Canis latrans*) from Kansas, U.S.A., received on approval; a Vulpine Phalanger (*Phalangista vulpina*), born in the Gardens.

GEOGRAPHICAL NOTES

THE present number of the *Bulletin de la Société de Géographie* commences with a paper by M. Duveyrier, on the geographical extent of the Mussulman confraternity of Senousi. This sect, which is distinguished by its austere and fanatical tenets, arose forty-six years ago under an Algerian, and appears to have in a greater or less degree permeated the Mohammedan world, and acquired vast political importance. It flourishes especially in Northern Africa, reaching as far south as Timbuctoo. The details of its precise extent and the nature of its activity are given in the paper. The second paper, which is not signed, records a French hydrographical mission to the coast of Morocco by the French officer M. Vincendon-Dumoulin in 1854. The most interesting part of the paper is the introduction, in which the writer discusses the necessity of having a dictionary of geographical etymology; that is, a work which will explain as far as possible the origin and meaning of geographical names, not only from a philological but also an historical point of view. The names, he says, which, for example, Stanley and De Brazza are giving their settlements in Africa, are explicable now, when everybody knows why Leopoldville is so called; but it may be different fifty years hence. But who knows, he inquires, that the territory called Adélie in the Polar Ocean was so called after the wife of Admiral Dumont d'Urville, or that the capes known as Jagersschmidt and Cotelle were named after the members of the hydrographical expedition to Morocco, which the paper then goes on to describe? From the report of a Committee of the Society appointed for the purpose, we see that three